

SOIL MOISTURE ROUTING AND CONTAMINANT FATE MODEL FOR GeoRAMS

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ABSTRACT

GeoRAMS (Geospatial Risk Assessment Modeling System) is a health and environmental risk assessment system developed around the ArcGIS software platform. Risks associated with exposure to air, surface water, land/soil, and water supply systems, which may have been contaminated through terrorist activities, accidental releases, or spills, are addressed. Within the GeoRAMS, a watershed based semi-distributed Soil Moisture Routing and Contaminant Fate (SMRCF) model is used to track surface runoff and contaminant concentration for use in exposure assessment as part of risk characterization and as the water body model's input. SMRCF applies the soil moisture routing equation at a grid cell scale to simulate the hydrology for watersheds. The contaminant loss processes considered by the model are first-order degradation, volatilization into the atmosphere, leaching into the vadose zone with infiltrating water, and overland flow along with runoff water. The model assumes linear, equilibrium partitioning between vapor, liquid, and adsorbed phases. This poster and computer demo will describe the model methodology and its applications at an installation site.

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